Original Research Article

Cervical Carcinoma Screening using Colposcopy and PAP Smear: A Comparative Study

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Abstract

Aim: The aim of the present study was to evaluate screening of cervical carcinoma by PAP smear and Colposcopy.

Methods: This study was conducted in Department of Obstetrics and Gynecology. The study constituted 200 women as subjects who attended the Gynecology OPD as well as ones admitted in gynecology ward fulfilling the inclusion and exclusion criteria.

Results: Among 200 patients, 18% belongs to age group of 20-30 years, 54% among 31-40 years, 16% among 41-50 years, 12% among 51-60 years age group. The maximum cases belong to 31-40 years age group (55=4%) with mean age 38.04 years. According to Modified Kuppu-swamy classification, 55% of women were of Upper-lower class, 25% were of Lower-middle class and 20% were of Lower class. Significant differences noted between different classifications and age at 1st coitus, therefore, premalignant lesions are commonly associated with 1st coital history at an early age of life. On colposcopy examination, most of the cases show neoplastic proliferation (112 cases, 56%). Among them, most cases were diagnosed as cervical intraepithelial neoplasia-I (CIN-I). 88 cases (44%) were non-neoplastic.

Conclusion: The use of colposcopy and pap smear testing has gained widespread acceptance as a screening strategy. Cost-effective non-invasive tests for the early diagnosis of cervical cancer exist and may be efficiently used in rural locations. These interventions have the potential to significantly decrease the rates of both death and morbidity associated with cervical cancer.

Keywords: Colposcopy, Dysplasia, Cervical Cancer, Pap Smear.

Introduction

The Papanicolaou (Pap) smear has served as a fundamental component of structured, population-based initiatives for cervical cancer screening. These programmes have shown notable achievements in reducing the occurrence and fatality rates associated with cervical cancer in developed countries. [1] The primary advantages of cytology-based screening are its inherent simplicity, relatively cheap cost, and extensive information base about numerous cytological patterns associated with precancerous lesions. [2] While cytology is effective in identifying women who have a greater likelihood of having high-grade cervical premalignant lesions or invasive cancer, the utilization of a diagnostic procedure like colposcopy is essential for women with abnormal cytology. This procedure serves multiple purposes, including localizing the abnormality, confirming the diagnosis, and determining the appropriate course of management. In 2011, the International Federation for Cervical Pathology and Colposcopy (IFCPC) implemented a new nomenclature with the aim of enhancing the objectivity of colposcopy and facilitating the comparison of research findings. [3] The current IFCPC terminology has replaced the previous terminologies such as "satisfactory" and "unsatisfactory" colposcopies. Using this nomenclature, the colposcopists are required to start examination with a general assessment of the cervix, which involves looking for (i) adequacy of exposure, (ii) visibility of squamocolumnar junction, and (iii) type of transformation zone (TZ).

Global report published by WHO in 2014, shows that around 2,66,000 women died from cancer of cervix in the year 2012. [4] Therefore this cancer is taking a toll on the health of women worldwide. Among the South-Asian countries, India has the

highest age standardization incidence of cervical cancer at 22, compared to 19.2 in Bangladesh, 13 in Sri Lanka and 2.8 in Iran. So, it is very important to understand the epidemiological pattern to diagnose cervical cancers at an early stage. [5] But, if it could be diagnosed at the precursor stage, cervical cancer can be managed and prevented successfully. Screening programs are necessary to identify the disease before it progresses to invasive cancer. Many studies now provide evidence of the feasibility and cost-effectiveness of screening and treatment approaches for cervical cancer prevention. These can be easily adopted for various settings. A significant reduction in cervical cancer mortality was shown following a single round of screening with HPV testing or VIA screening in a randomized trial in India. [6] The cytology and colposcopy study compliments each other for complete diagnosis and treatment of cervical cancers in early stages. In upcoming times, also HPV testing might be considered but is expensive for low socioeconomic group of population in India. [7]

The aim of the present study was to evaluate screening of cervical carcinoma by PAP smear and colposcopy.

Materials and Methods

This study was conducted in Department of Obstetrics and Gynecology at Darbhanga Medical College and Hospital, Darbhanga, Laheriasarai, Bihar, India for the period of 18 months. The study constituted 200 women as subjects who attended the Gynecology OPD as well as ones admitted in gynecology ward at Darbhanga Medical College and Hospital, Darbhanga, Laheriasarai, Bihar, India, fulfilling the inclusion and exclusion criteria.

Inclusion Criteria

a) Age between 18-65years
b) Patient with complaints of profuse white discharge, post coital bleeding, inter-menstrual bleeding and postmenopausal bleeding.
c) On per speculum diagnosed clinically with cervical erosion or polyp, condyloma, vaginitis, cervicitis and unhealthy cervix, etc

Exclusion Criteria

a) Patients with presence of bleeding on per speculum.
b) Patients diagnosed clinically with invasive carcinoma (ulceration, obvious growth, or eaten up cervix.
c) Patient unwilling to give consent.

Method

200 women fulfilling inclusion criteria were studied by taking detailed history followed by complete physical examination with per speculum and per vagina examination. They are then subjected to Pap smear on mandatory basis. Firstly cervix inspected under good illumination and then excess cervical mucus mopped out with saline soaked cotton wool topped applicator. 3-5% acetic acid was applied, followed by observation through colposcope and changes noted by free hand drawing method.

For all suspected lesions, punch biopsy taken and tissue sent for histo-pathological examination. All lesions were graded by Reid and Scalzi colposcopic index. The above was then subjected to statistical analysis.

Results

Table 1: Patient details

Age in years	Number of patients	%
20-30	36	18
31-40	108	54
41-50	32	16
51-60	24	12
Total	200	100
Socio-economic status		
Lower	40	20
Lower-Middle	50	25
Upper-Lower	110	55
Total	200	100

Among 200 patients, 18% belongs to age group of 20-30 years, 54% among 31-40 years, 16% among 41-50 years, 12% among 51-60 years age group. The maximum cases belong to 31-40 years age group (55=4%) with mean age 38.04 years. According to Modified Kuppu-swamy classification, 55% of women were of Upper-lower class, 25% were of Lower-middle class and 20% were of Lower class.

Table 2: Correlation between benign, premalignant and malignant lesions in relation to age at 1st coitus

Age at 1st coitusclassification	≤18years	≥18years	Total
Benign	65	75	140
Premalignant	30	20	50
Malignant	00	10	10
Total	95	105	200

Significant differences noted between different classifications and age at 1st coitus, therefore, premalignant lesions are commonly associated with 1st coital history at an early age of life.

Table 3: Distribution of the study patients according to colposcopy findings

Colposcopy findings	Frequency	Percentage
Non-neoplastic	88	44
CIN I	80	40
CIN II	20	10
CIN III	6	3
Malignant	4	2
Benign (polyp)	2	1
Total	200	100

On colposcopy examination, most of the cases show neoplastic proliferation (112 cases, 56%). Among them, most cases were diagnosed as cervical intraepithelial neoplasia-I (CIN-I). 88 cases (44%) were non-neoplastic.

Discussion

Cancer of cervix remains a major concern for cause of death in developing countries among the middle aged women even after prompt consideration and knowledge on prevention, screening, early diagnosis and treatment. In the 1940s this was Originating and by the 1960s recognized as the standard of gynecologic care, annual cervical cytology screening has been an integral part of the well-woman exam since long time. The estimated new cases to be diagnosed in US for 2017 are 12,820 and estimated 4,210 deaths will occur in 2017 (as per CDC). In India, every year 1, 22,844 women diagnosed with cervical cancer and 67,477 died from disease. It ranks 2nd most frequent cancer among women in India (as per ICO HPV Information Centre and NICPR). Its mortality steeps in equity with socio- economic status i, e lower the socio-ecomic status, higher the mortality. [8]

Among 200 patients, 18% belongs to age group of 20-30 years, 54% among 31-40 years, 16% among 41-50 years, 12% among 51-60 years age group. The maximum cases belong to 31-40 years age group (55=4%) with mean age 38.04 years. According to Modified Kuppu-swamy classification, 55% of women were of Upper-lower class, 25% were of Lower-middle class and 20% were of Lower class. Patel et al in 2011 observed premalignant cervical lesion in patients with 30-50 years age group which is similar to our study. [9] Naik et al in 2015 showed that most vulnerable age group for cervical malignancy was 35-55 yrs. [10] Usha et al also observed that, majority of the

cervical abnormalities (85%) in India were detected in women <40 years of age. [11] The factors associated with cervical cancer were poor personal hygiene, poor living condition, marriage with un-stability, early age at 1st intercourse.

Another multicenter study conducted in the United Kingdom, which evaluated the management of borderline or ASCUS cytology concluded that there was no clear benefit of immediate colposcopy referral as it lead to overtreatment with associated after effects in the young women. [12] Based on these studies, the current recommendation to manage the women with ASC-US smear is to perform reflex oncogenic HPV testing (from the same sample in which liquid-based cytology was done originally) or to recall the women to collect samples for HPV test. Women with ASC-US smear but negative on HR-HPV test are returned to normal recall. The HPV-positive women should be immediately referred to colposcopy. Significant differences noted between different classifications and age at 1st coitus, therefore, premalignant lesions are commonly associated with 1st coital history at an early age of life. On colposcopy examination, most of the cases show neoplastic proliferation (112 cases, 56%). Among them, most cases were diagnosed as cervical intraepithelial neoplasia-I (CIN-I). 88 cases (44%) were non-neoplastic.

Studies have shown that with an LSIL referral, the rates of CIN2+ and CIN3+ are 17% and 12% respectively. [13,14] A multicenter study in the United Kingdom concluded that although immediate colposcopy on women referred for LSIL detected CIN2+ lesions, it lead to large number of referrals with no high-grade abnormalities. [12] In the context of low and middle income countries where colposcopy services are limited, factors like age of women and availability of a triage test are to be considered to understand who should undergo

diagnostic colposcopy and who should be followed up or returned to routine screening protocol.

Conclusion

The use of colposcopy and pap smear tests is commonly acknowledged as a prevalent screening approach. Cost-effective non-invasive tests for the early diagnosis of cervical cancer are available and may be efficiently used in rural locations. These interventions have the potential to significantly decrease both the mortality and morbidity rates associated with cervical cancer. Despite the relatively low sensitivity, the issue may be mitigated by the implementation of appropriate training programmes for healthcare personnel. The active involvement of government and non-governmental organizations (NGOs) is crucial in promoting health education, conducting advertising campaigns, and implementing early-stage screening programmes.

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